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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,843	03/15/2001	Peter Crane	169.12-0487	5267

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EXAMINER	
CHEN, TIANJIE	
ART UNIT	PAPER NUMBER
2652	12

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/808,843	CRANE ET AL.	
	Examiner	Art Unit	
	Tianjie Chen	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-6 and 21-23* is/are allowed.

6)☐ Claim(s) *7-10,12,16,17 and 20* is/are rejected.

7)☒ Claim(s) *11,13-15,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

2nd Non-Final Rejection

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 7-10, 12, 16, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Soeno et al (US 6,574,077).

With regard to claim 7, Soeno et al shows a disc drive in Figs. 32 and 18B having a recording disc 6 rotatable about an axis, a slider 2 supporting a transducing head 1 for transducing data with the disc, and a actuation assembly supporting the slider to position the transducing head adjacent a selected radial track of the disc, the actuation assembly comprising: a movable actuator arm 54, a suspension assembly 3 supported by the actuator arm, the suspension assembly including a flexure 31 (Column 27, lines 41), a slider bonding pad (Fig. 19A) supporting the slider; a microactuator 4 (Figs. 19B and 9) including: a rotor 44 attached to the slider; a stator 43; and a beam structure

441+442+411a+412a operatively connecting the rotor and to the stator so as to permit movement of the rotor with respect to the stator, wherein the beam structure limits deflection of the rotor out of a plane defined by the microactuator; the beam structure including a first beam pair element 411a and 412a aligned with a width of the rotor and a second beam pair element 441 and 442 aligned with a length and the width of the rotor.

With regard to claim 8, Soeno et al further shows that the first beam pair element comprises two first beam elements 411a and 412a.

With regard to claim 9, Soeno et al further shows that the two first beam elements define a rotation center at the middle of the line connecting opposite end of two first beam elements, the rotation center defining a center of in-plane rotation of the rotor.

With regard to claim 10, Soeno et al further shows in Fig. 9 that the rotor 44 is balanced about the rotation center.

With regard to claim 12, Soeno et al further shows that the second beam pair element includes two second beam elements 411a and 412a in a dog-leg configuration, including: a left lateral beam 442 wherein the length of 442 is aligned with the length of the rotor and the transverse length of is aligned with the width of the rotor; and a right lateral beam 441 wherein the length of 441 is aligned with the length of the rotor and a transverse length is aligned with the width of the rotor.

With regard to claim 16, Soeno et al further shows that the beam structure has a height of approximately 200 microns (Column 31, lines 46).

With regard to claim 20, Soeno et al shows a disc drive in Figs. 32 and 18B having an recording disc rotatable about an axis, a slider 2 supporting a

transducing head 1 for transducing data with the disc, and a actuation assembly supporting the slider to position the transducing head adjacent a selected radial track of the disc, the actuation assembly comprising: a movable actuator arm 54; a suspension assembly 3 supported by the actuator arm the suspension assembly including a flexure 31 (Figs. 18A and 18B), and a microactuator including: a rotor 44 attached to the slider; a stator 43 attached to the flexure; and means for operatively connecting the rotor to the stator so as to permit movement of the rotor with respect to the stator, wherein the means permits microactuation of the microactuator while limiting motion of the stator out of a horizontal plane of the microactuator and limiting motion of the slider longitudinally.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soeno et al in view of Applicant Admitted Prior Art (AAPA).

With regard to claim 17, Soeno et al does not show that the rotor stresses the beam structure to less than approximately 8.8% of its breaking strength.

However, AAPA shows that as a conventional device, wherein the rotor stresses the beam structure to about 8.8% of its breaking strength (p. 7 line 22 to p. 8, line 3 in Specification).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to reasonably expect that the rotor stresses the beam structure to about less than approximately 8.8% of its breaking strength as conventionally, which includes less than approximately 8.8% of its breaking strength because 8.9% is approximately 8.8% and 8.8% is less than 8.9%.

Allowable Subject Matter

4. Claims 1-6 and 21-23 are allowed.

Claims 11, 13, 14, 15, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

- With regard to claim 1, as the closest reference, Soeno et al (US 6,246,552) shows a microactuator having a stator and a rotor which holds the slider and is movable with respect to the stator; **but fails to show** the **means disclosed in specification of this application** for limiting deflection of the rotor out of a plane defined by the microactuator frame; wherein means is referred to a structure which is limited to the microactuator having exact

structure shown in Figs. 3-5 and described in specification, pp. 4-6.

- Applicant assumes that the above mentioned means would prevent the stator from significantly shifting vertically out of the horizontal plane of microactuator and minimize the amount of vertical deflection (p. 6, lines 20-22 in Specification).

- With regard to claims 11 and 21, as the closest reference, Soeno et al (US 6,246,552) shows a microactuator, **but fails to show** a distal connector connecting the distal end of a magnet bonding pad and a slider bonding pad, wherein the distal connector is located at the rotation center.
- With regard to claim 13, as the closest reference, **but fails to show** that the second beam pair element is connected to the stator 43.
- With regard to claim 14, as the closest reference, Soeno et al (US 6,246,552) shows a microactuator, **but fails to show** that a proximal connector connecting the proximal end of the rotor and the second beam pair element.
- With regard to claims 18 and 22, as the closest reference, Soeno et al (US 6,246,552) shows a microactuator, **but fails to show** that the microactuator includes at least one deflection limiter for limiting the deflection in direction of the length of the rotor.

- Applicant assumes that the above mentioned structures would stop further movement of the slider as the slider is palled away from the stator approximately 50 microns (pp 8-9 in Specification).

Response to Arguments

5. Applicant's arguments with respect to claim 7 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is (703) 305-7499. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tianjie Chen
Primary Examiner
Art Unit 2652
03/11/2004